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Training of a Weightlifter: A Scientific Approach

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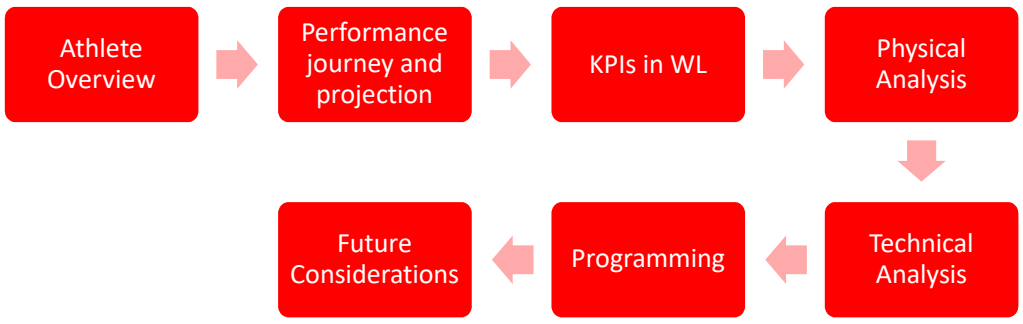
Content



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Athlete Overview

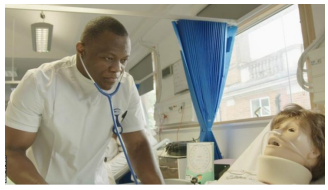
Name : Cyrille Tchatchet II

Age: 23

Occupation : Mental Health Nurse / Student / Weightlifter

Primary Weight Class : ~~94~~ < 96 kg (102 kg)

Injury : Knee pathology



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From the Commonwealth Games to homelessness: the Cameroonian refugee weightlifter hoping to make it to the Tokyo Olympics

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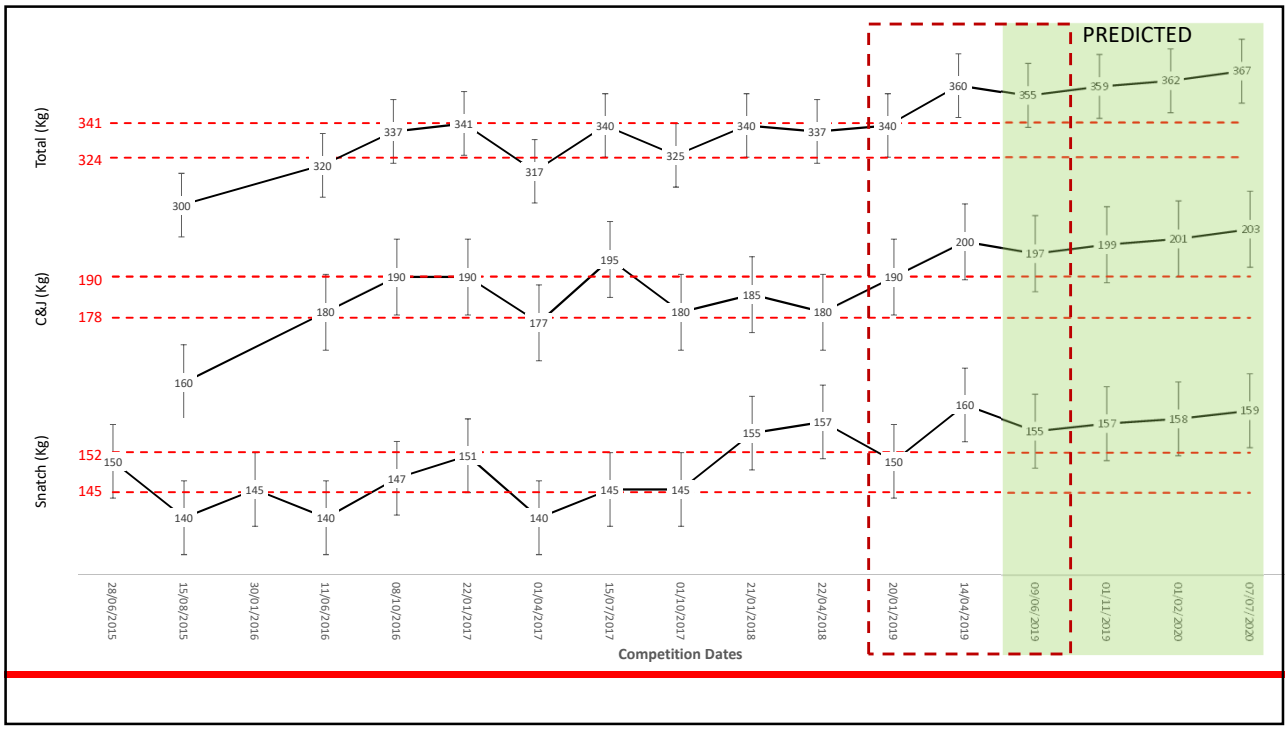

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Key Performance Indicators (KPI)

- Bar kinetics and kinematics [1,2,3]
- Anthropometry[4]
- Flexibility
- Mindset
- Strength & Power[3,5]

[1]Garhammer (1979) ; [2]Gourgoulis et al (2009); [3]Harbili and Alptekin (2014); [4]Ebada (2013); [5]Beckham et al (2013)

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IMTP & CMJ Testing

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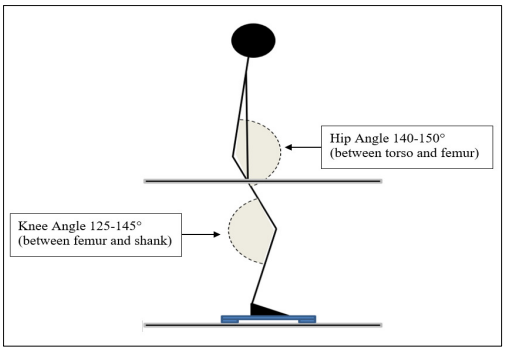

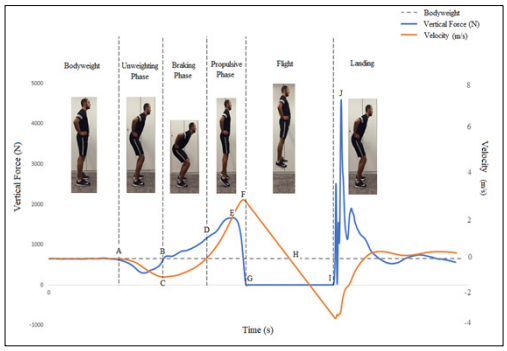

Peak Force (N), relative Peak Force (N/Kg)

Impulse (Ns)*, Jump Height (cm)[5, 7], Power (W)[9]

Well related to WLp[5, 7, 9]

PF (N) = 0.805 * **ConImp = 0.769** *

*unpublished data ; [5]Beckham et al 2013; [6]Chavda et al (*in press*); [7]Haff et al (2005); [8]Chavda et al (2018); [9]Carlock et al (2004)

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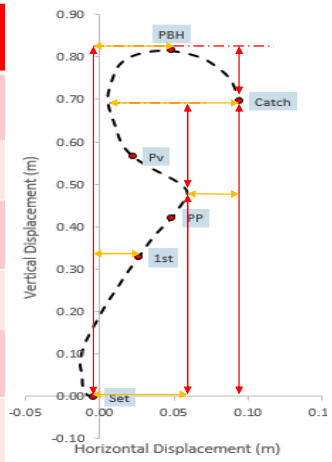
Barbell Trajectory

Point of Interest	Identifier	Key
Set	First frame before 0.01m displacement.	Set
1st Pull	1st vertical peak and 0 acceleration.	1st
Power Position	Lowest v value after 1st peak v and 0 acceleration.**	PP
Peak Velocity	Peak *v* value.	Pv
Peak Bar Height	Peak vertical displacement of barbell and 0 *v*.	PBH
Catch	Minimum displacement of barbell and 0 *v*.	Catch



[10] Stone *et al* (1998); [11]Ikeda et al (2012)

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Technical Analysis

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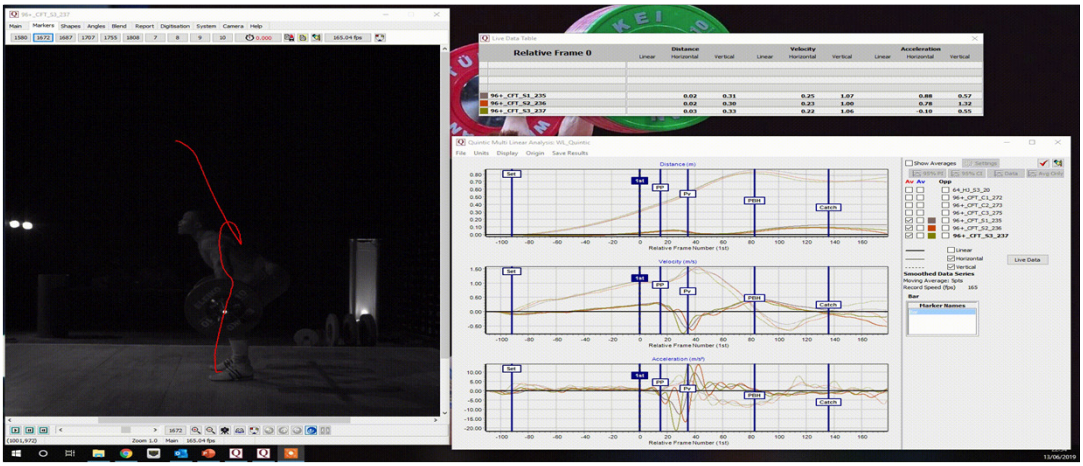
Technical Analysis



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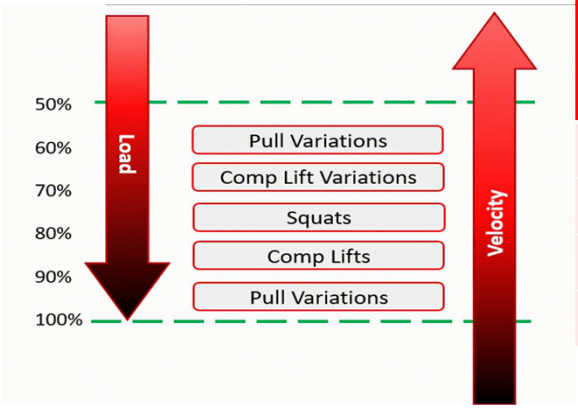
Exercise Selection



Primary Objective : "Improve pull to PP" **Secondary Objective** : "Improve bar path after contact"	**Intensity Range**	**Set x Rep Range**
MTC Pull	140-150%	3-4 x 4-1
Pulls (+ Power Pulls)	90-110%	2-5 x 3-1
Comp Lift Derivatives @ Knee from blocks	70-85%	3-5 x 2-3
High Pull	60-80%	3-4 x 4-2

[12] Suchomel, Comfort and Stone (2015); [13]Suchomel, Comfort and Lake (2017)

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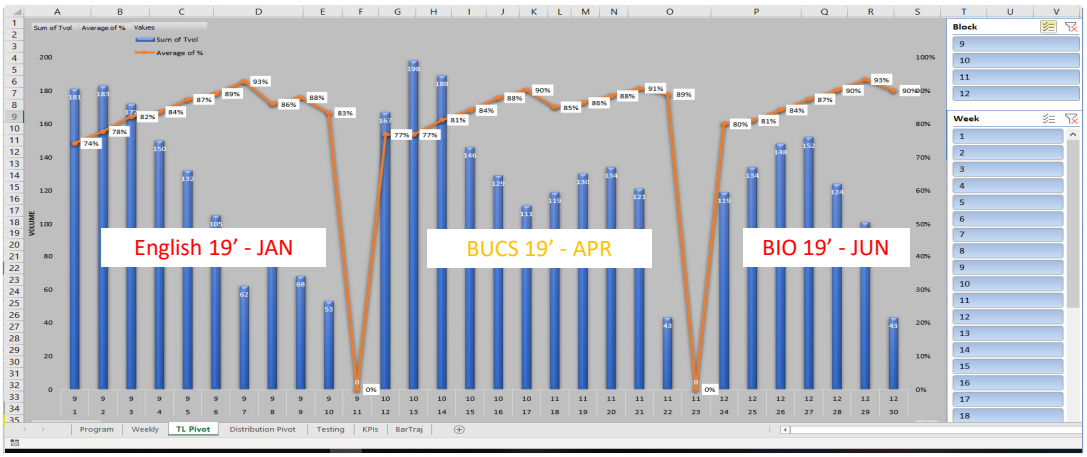
Programming & Distribution



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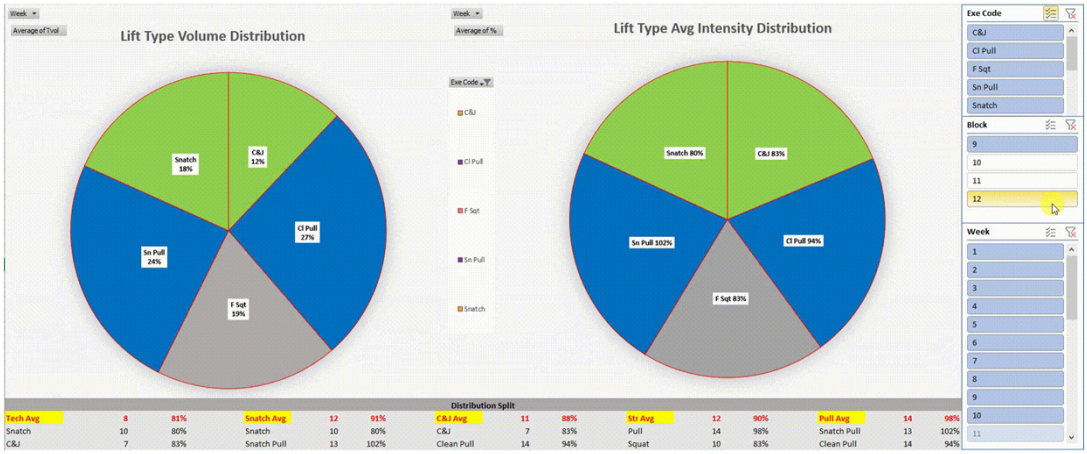
Programming & Distribution



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Performance Outcomes

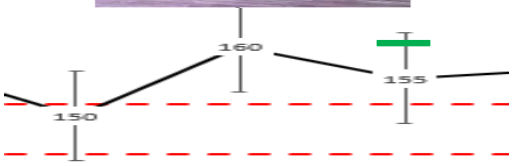
Snatch – 161 nr lpb

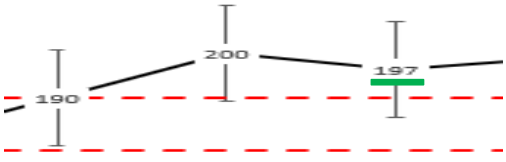
Projected : 355kg

Attempted : 366kg

Achieved : 356kg

C&J – 205x nr lpb





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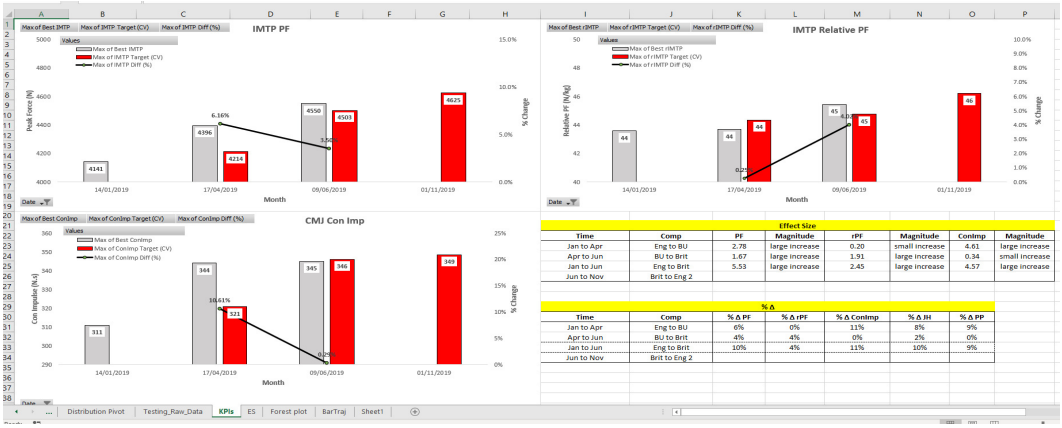
Physical KPI's



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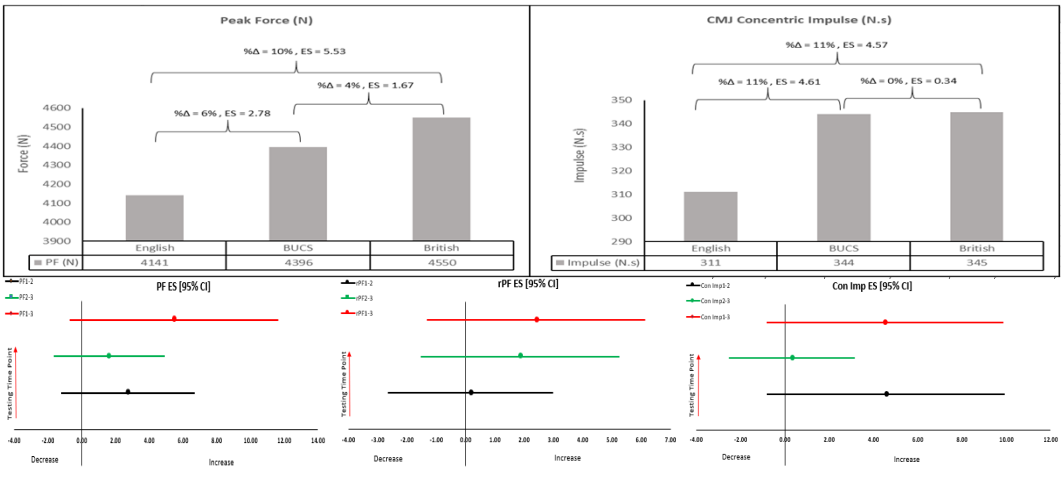
Physical KPI's



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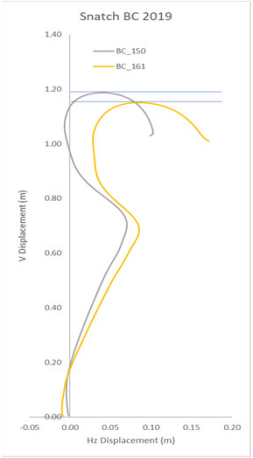
Future Considerations

- Standardise training capture.
- Utilise average trajectories and associated variables from training.
- Explore alternative IMTP F metrics (i.e F@Tp, Impulse).
- Refine regression analysis and change boundaries.



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Thank you..
Questions?

UNHCR The UN Refugee Agency

Middlesex University London Sport Institute

@liCyrille

@Cyrille_fagat

INTERNATIONAL OLYMPIC COMMITTEE

BRITISH OLYMPIC ASSOCIATION

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